

about 50 kbps.²²⁴ The network access points (NAPs), where the backbone networks interconnect, are a further source of congestion.²²⁵

As a result of the congestion on the backbone networks, users complain that they do not see the benefit of faster connections using ISDN or cable modems.²²⁶ Residential users cannot be expected to spend more for Internet access until they can be assured that the product they are buying is fast and reliable. Until adequate bandwidth and stable backbones are built, consumer adoption of ADSL and ISDN, and of competing technologies like cable modems, will be delayed.²²⁷

Thus, despite frequent allegations to the contrary, the local exchange is not currently the main choke point for Internet traffic.²²⁸ Analog phone lines can still accommodate the 56 kbps of the fast modems now on the market, and ISDN lines, supporting 128 kbps rates, are available to 93 percent of subscribers nationwide, both residential and business. But the problems in the upper regions of the network are being addressed, albeit more slowly than they should or could be. Over the next few years there clearly will have significant new investment in local facilities, too, or local networks will replace the backbones as the choke points in the system.

²²⁴See J. Rickard, *Internet Backbone Measurement Results*, Boardwatch Magazine Online, July 1997, <http://www.boardwatch.com/MAG/97/JUL/bwm22.htm>.

²²⁵According to one analyst, WorldCom's MAE East in Washington, D.C. handles more than 60 percent of all worldwide traffic and an estimated 85 percent of all intra-European traffic. Any traffic running through this NAP is choked by mediocre bandwidth. J. Dvorak, *Breaking Up the Internet Logjam*, PC Magazine, Apr. 8, 1997, at 87.

²²⁶This "means that performance of next-generation technology such as cable-TV or satellite modems will be severely limited, at least until overall Internet throughput for standard Web content is substantially improved." Keynote Press Release, *Keynote Systems Clocks True Speed On The Internet Highway At 5,000 Characters Per Second, or Only 40 Kbps*, Oct. 21, 1997. "[Y]ou have to wonder exactly what these cable modem boosters are about. While it's possible for a cable modem to get the home Web page from the local cable modem server at some blazing speed, this is simply misleading if the average time of all the backbones is 50 kbps. 50 kbps is the average speed you will get, period! [Similarly,] 128K ISDN . . . isn't that useful." J. Dvorak, *Slower Than You Think*, PC Magazine Online, Aug. 11, 1997. See also R. Gareiss, *Mapping a High-Speed Strategy*, Data Communications, Apr. 1997, at 62 ("Increasing the speed of the local loop won't work miracles with sluggish Internet access, since factors like server speed and congestion at Internet NAPs . . . affect actual throughput."); D. Hoye, *Cox @Home; The Access Is Easy; But Even its Fast Speed Can't Overcome Peak-Time Congestion On The Internet*, Arizona Republic, Oct. 13, 1997, at E1 ("I've found that roaming the Internet with souped-up access doesn't guarantee great results.")

²²⁷Indeed, the inability of the backbones to provide sufficient bandwidth to allow users to take full advantage of cable modem transmission speeds was one of the reasons TCI helped found the "@Home backbone." B. Dalglish, *Investors Bet Big on Pure Cable-Modem Play*, The Financial Post, Oct. 9, 1997, at 31.

²²⁸The Keynote study concluded that "most of [many websites'] performance problems occur out in the Internet's infrastructure somewhere between the web site and its users: at the NAPs (Network Access Points) where backbone providers interconnect, in one or more routers along the communication path, or in a DNS (Domain Name Service) close to the user." Keynote Systems, *Top 10 Discoveries About the Internet*, <http://www.keynote.com/measures/top10.html>.

Impediments to New Investment in Internet Backbone Networks. At the level of the Internet backbone, AT&T and MCI show little promise as architects of the network of the future. Both companies have announced and then killed a succession of data and Internet services.²²⁹ AT&T recently announced activation of a "high-performing" Internet backbone,²³⁰ but the prospects for this latest venture must be judged in light of AT&T's late arrival, limited involvement, and even more limited success in Internet markets in the past.

AT&T and all other long-distance carriers who derive most of their current revenues from voice must recognize that growth of the Internet threatens their profits almost as much as Bell Company entry into long-distance markets. Existing voice customers pay for service on a per-minute-of-use basis. Long-distance carriers therefore have an incentive to keep the Internet noncompetitive with their existing high-margin services, most particularly in the arenas of 800 numbers,²³¹ fax transmission, and international toll calls.

This may explain why WorldCom, almost unknown a few years ago, is fast emerging as "the King of the Internet."²³² If WorldCom's proposed acquisition of MCI goes through, the combined firm will own 45,000 route miles of fiber²³³ and will be by far the largest provider of

²²⁹In May 1994, AT&T announced that it would offer three on-line services in 1995: NetWare Connect Services, Network Notes, and PersonaLink. Less than three years later, AT&T was substantially out of the on-line industry, with the exception of its WorldNet Internet services (begun in February 1996). K. Patch, *Integration Key to AT&T's On-Line Plan*, PC Week, May 30, 1994, at 14; J. Davis, *AT&T Shifts to WorldNet on NetWare Connect Services*, InfoWorld, July 15, 1996, at 12; J. Schwartz, and J. Rendleman, *AT&T Drops Notes in Face of Internet*, Communications Week, Mar. 4, 1996, at 1; P. McKenna, *AT&T Ends PersonaLink Service*, Newsbytes, July 12, 1996; P. McKenna, *America Online Acquires The Imagination Network*, Newsbytes, Aug. 7, 1996. MarketplaceMCI, "one of the most notable Internet business collapses," vanished from the Internet after "fail[ing] to attract sufficient sales." S. Alexander, *Christmas Shopping Has New Meaning on the Net*, Star Tribune, December 14, 1996, at 1A.

²³⁰AT&T Press Release, *AT&T Announces Business-Quality IP Services, Its High-Performing IP Backbone*, Oct. 8, 1997.

²³¹Federal Express, for example, has installed a package tracking website that receives 107,000 hits per day. These inquiries substitute for calls to FedEx's 800 number, and thereby diminish the long-distance carriers' lucrative pay-by-the-minute 800 services. The FedEx Web site uses only 1/25 as much long-distance circuit capacity per customer inquiry as the 800 service. To use the site, the user needs to download two Web pages, the standard tracking page and the page that contains the tracking results. These two pages (excluding unnecessary graphics) represent roughly 120,000 bits. Using FedEx's automated calling system, on the other hand, ties up a voice channel for about 46 seconds. A voice conversation converted into digital form requires 64 kbps. The automated calling system therefore uses capacity equal to that needed to transmit 2.8 million bits. N. Negroponte, *Psst! Transactions*, Forbes, July 7, 1997, at 166.

²³²M. Landler, *The Battle For MCI: The Offer; Upstart Offering \$30 Billion To Buy MCI, Using Stock*, N. Y. Times, Oct. 1, 1997, at A1; see also J. Sandberg, *How One Company Is Quietly Buying Up the Internet*, Wall St. J., Sept. 9, 1997, at B1 ("acquisitions have turned WorldCom into an Internet giant").

²³³K. Gerwig, *Q&A: Sidgmore Speaks On The Proposed MCI Deal*, InternetWeek, Oct. 3, 1997, <http://www.techweb.com/wire/news/1997/10/1003sidgmore.html>.

Internet access and backbone services.²³⁴ WorldCom owns and operates UUNet, through which – consistent with its general strategy of serving only business customers, not residences – WorldCom provides Internet services directly to businesses and ISPs.²³⁵ In September 1997, WorldCom purchased the America Online and CompuServe fiber networks,²³⁶ but did not take their subscriber bases, a combined 14 million strong.²³⁷ Rather than attempt to break into the residential online service market itself, WorldCom purchased only extra capacity for its commercial and ISP Internet access business. WorldCom's proposed acquisitions of MCI and Brooks Fiber would both add high-margin, business-only elements to WorldCom's network and service offerings. By doing little to add to Internet infrastructure, incumbent long-distance carriers have left the field largely to a single ambitious upstart that is buying up large parts of the infrastructure already in place.

In these circumstances, Bell Companies clearly should be playing integral roles in supplying new Internet bandwidth, not only for local access, but up through the higher tiers of the network as well. The Bell Companies certainly have the right incentives to invest in this market, because the growth of the Internet helps them to sell additional telephone lines and new local bandwidth through services like ISDN. Unlike the incumbent long-distance companies, local phone companies have much to gain by migrating customers, residential customers in particular, off subsidized, flat-rate analog lines and onto high-capacity, properly priced, digital lines. But most of the local telephone companies (aside from GTE) are legally barred from providing Internet backbone services.²³⁸ The current regulations that apply to Internet services discourage only one class of provider – the Bell Companies. **Figure 27.**

²³⁴The merger would combine the networks of UUNet, CompuServe, America Online, and MCI. By some measures, UUNet's and MCI's networks are the largest in the United States. *Brooks Fiber Acquired: WorldCom Makes Unsolicited \$29-Billion Stock Bid for MCI, Topping BT Offer*, Communications Daily, Oct. 2, 1997; J. Rickard, Introduction, Boardwatch Magazine Directory of Internet Service Providers, July/Aug. 1997, at 4.

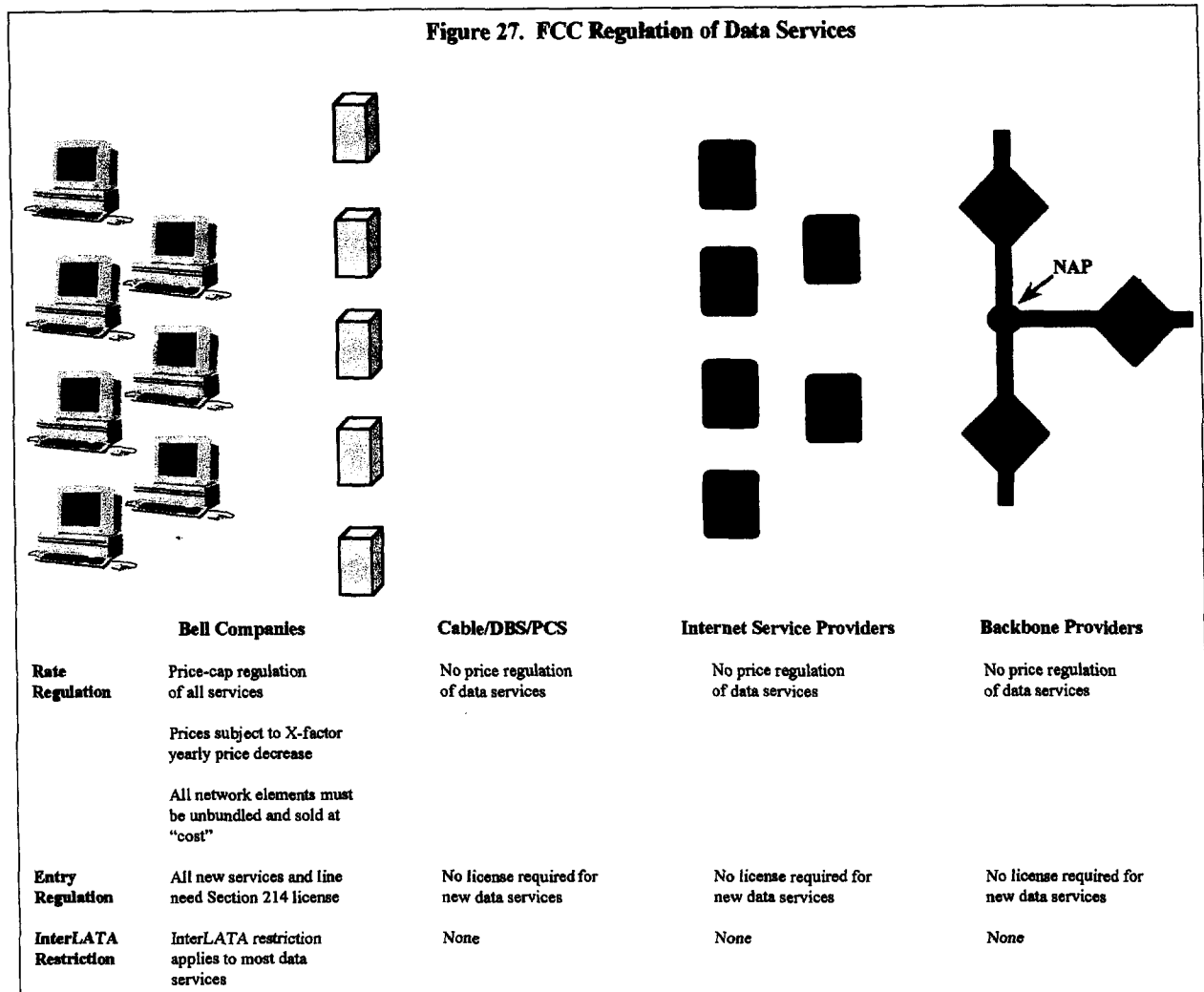
²³⁵See 1996 WorldCom Annual Report 28 (1997) (UUNet is the world's largest provider of Internet access services to "businesses, professionals and on-line services providers"); see also S. Comfort, et al., Morgan Stanley, Dean Witter, Co. Rpt. No. 2556537, WorldCom Inc., at 10 (June 3, 1997) (UUNet's services are "tailored to meet the needs of business customers").

²³⁶According to the Keynote study of backbone performance, CompuServe's network is "the best performing network on the Internet." J. Rickard, Measuring the Internet, Boardwatch Magazine Directory of Internet Service Providers, July/Aug. 1997, at 24. In comparison to average backbone speeds of 50 Kbps, CompuServe's backbone delivers roughly 300 kbps. The backbones operated by UUNet and ANS, by contrast, perform only at about average speeds. J. Rickard, Measuring the Internet, Boardwatch Magazine Directory of Internet Service Providers, July/Aug. 1997, at 26-27; J. Dvorak, *Slower Than You Think*, PC Magazine Online, Aug. 11, 1997, <http://www8.zdnet.com/pcmag/insites/dvorak/jd970811.htm>.

²³⁷*EarthLink Pins Growth on Two-Fold Strategy Key Elements Involve Referral, Acquisition Programs*, InternetWeek, July 14, 1997.

²³⁸47 U.S.C. § 271. The Bell Companies may act as ISPs to a limited extent, but by most constructions of the 1996 Act are forbidden from arranging the long-distance transport over the backbone networks on behalf of the

Figure 27. FCC Regulation of Data Services



Impediments to Competitive Investment in Internet Access Networks. A second cluster of regulatory policies is creating equally strong disincentives to new investment in local Internet access facilities. Under the 1996 Act, Bell Companies are now required to "unbundle" and sell to their competitors whatever new capabilities and services they add to their networks,²³⁹ at rates "based on the cost[s] of providing" them.²⁴⁰ On new, risky investment in facilities and services that turn out to be very popular, Bell Companies can therefore hope to recover only their original

customer. As a result, customers of Bell Company ISP services must choose a second ISP to handle the long-distance connections, and the customers receive separate charges from each ISP. The extra bill has been a significant deterrent to the Bell Companies offering a competitive service.

²³⁹ 47 U.S.C. § 251.

²⁴⁰ 47 U.S.C. § 252(d).

costs. New, risky investments that fail, by contrast, are charged to Bell Company shareholders, through the vehicle of price-cap regulation.

Worse still, all Bell Company prices must be deflated according to a "productivity offset" or "X-factor" concocted by the FCC. The FCC's latest Price Cap Order sets the X-Factor at a level that the FCC itself has admitted is well in excess of what is "reasonable,"²⁴¹ thus threatening to choke off investment in new advanced services. Regulation alone may thus transform any well-engineered, efficiently priced, new broadband service into a source of steadily growing loss in subsequent years. The more advanced the technology deployed, the greater the threat, because in such circumstances further technological advance is least likely to deliver the instant, ongoing improvements in performance and declines in price that the Commission presumes into existence indefinitely into the future.

Under existing regulatory structures, almost any increase in bandwidth re-engages a snake's nest of old regulatory pricing debates. ISDN, for example, is one line that contains either three (for Basic Rate Interface ISDN) or 24 (for Primary Rate Interface ISDN) digital channels. It took the FCC over two years to decide whether such lines should therefore be subject to one, not three or 24, subscriber line charges; the Common Carrier Bureau and the Commission as a whole reached opposite conclusions.²⁴² That was in 1995. In 1997, the Commission changed course: it ordered one, newly-calculated, ISDN-only SLC to be charged per ISDN line, but changed the amount of the SLC.²⁴³ The SLC helps to pay for interstate uses of local networks. Meanwhile, many of those who use local phone networks most heavily to reach the Internet pay no access charges at all.²⁴⁴ The FCC recognized in 1987 that this distinction made no sense — interstate data callers use precisely the same local access lines as interstate voice callers, and indeed (on a per-customer basis) use them much more heavily.²⁴⁵

²⁴¹The FCC set the X-factor at 6.5 percent, even though historical productivity gains (the measure the Commission admittedly considers most reliable) have never showed productivity gains even approaching 6.5 percent. See Fourth Report and Order at ¶¶ 137, 141, Price Cap Performance Review for Local Exchange Carrier, CC Dkt. No. 94-1 (F.C.C. May 21, 1997).

²⁴²Notice, Common Carrier Bureau Will Not Enforce Current Rules on Application of Subscriber Line Charges to ISDN Service, 10 FCC Rcd 13473 (1995), rev'g, Memorandum Opinion and Order, NYNEX Telephone Companies, Revisions to Tariff F.C.C. No. 1, Transmittal No. 116, 7 FCC Rcd 7938 (Com. Car. Bur. 1992), *aff'd on recon.*, 10 FCC Rcd 2247 (1995).

²⁴³*Access Charge Reform Order* at ¶ 116. Because PRI costs five times as much to provide as basic service, the PRI SLC was set at five times the basic SLC, subject to a cap of \$45; because BRI costs about the same as regular service, the BRI SLC was set to equal the regular SLC. *Ibid.* The LECs are also allowed to assess additional end-user charges to recover the additional costs of ISDN line cards. *Access Charge Reform Order* at ¶ 126.

²⁴⁴Order, Amendments of Part 69 of the Commission's Rules Relating to Enhanced Service Providers, 3 FCC Rcd 2631 (1988).

²⁴⁵Notice of Proposed Rulemaking, Amendments of Part 69 of the Commission's Rules Relating to Enhanced Services Providers, 2 FCC Rcd 4305 (1987).

But the disparate treatment remains in place, because in the ten years since, nobody has been able to muster a political consensus on how to correct it.²⁴⁶

This regulatory environment leaves new entrants with little incentive to invest in local residential markets. Even if they put aside concerns about unleashing the Bells, they cannot ignore the fact that – under current regulatory mandates – reselling Bell service is by far the cheapest way to enter most local residential markets. Every major player has reached that conclusion. “There’s not one company that intends to enter the local market by duplicating the local networks that already exist today,” declared AT&T’s former chief executive Robert Allen. “That would be redundant, not to mention financially prohibitive. Instead, companies like AT&T intend initially to buy service from the local companies at a discount and resell the service to their own customers.”²⁴⁷ Sprint likewise says it will focus on a “resale approach that does not entail a significant up-front investment;” the company won’t invest in infrastructure “until it becomes clear to us that regulatory conditions exist that would support a significant financial commitment.”²⁴⁸ One of MCI’s potential new owners, British Telecom, says it will “purchase bulk capacity from local telephone carriers” and thereby “leverage other people’s infrastructure.”²⁴⁹ And as noted earlier, the CEO of one of MCI’s other suitors, MFS/WorldCom, is certain that “[n]ot AT&T, not MFS or anyone else, is going to build local telephone facilities to residential customers. Nobody ever will, in my opinion.”²⁵⁰ Not long after the FCC issued its Local Interconnection Order, MFS set out to “re-orient[] its network build-out focus away from building to end-users and instead . . . connect[] to the customer via incumbent local exchange carrier unbundled loops.”²⁵¹

Interconnection regulation has thus accelerated new entry of brand names and marketing organizations. It has lowered entry barriers, but at a price to competition itself. The whole point

²⁴⁶See *Immediate Hill Backlash, FCC Considers Linking ESP Access Charges to ONA*, Communications Daily, Nov. 17, 1988, at 1 (“[A] cyclone of protest from Congress, NTIA and hundreds of computer-service users” killed the FCC’s initiative.). In its Access Charge Reform Order, the FCC succeeded only in raising monthly fees on second residential phone lines, the lines most often used for data access. See *Access Charge Reform Order* at ¶¶ 78, 344.

²⁴⁷Robert E. Allen, *Cutting the Barbed Wire: Lessons of a Reformed Monopolist*, delivered at the University of Texas, Austin, Texas, Oct. 21, 1996. See also AT&T Press Release, *AT&T Response To WorldCom Announcement*, Oct. 1, 1997 (“AT&T’s strategy” is to use “every possible option to enter local markets without laying out undue amounts of capital.”).

²⁴⁸Sprint Press Release, *Statement of William T. Esrey, Chairman and CEO of Sprint*, July 14, 1997.

²⁴⁹*London on the Line*, Washington Post, Nov. 10, 1996, at H1.

²⁵⁰M. Mills, *Hanging Up on Competition?*, Washington Post, June 1, 1997, at H1 (quoting Bernard Ebbers, Chairman and CEO of WorldCom).

²⁵¹D. Reingold, et al., Merrill Lynch Capital Markets, Co. Rpt. No. 2515985, MFS Communications, at 2 (Nov. 7, 1996).

of interconnection regulation is to allow competitive entry with less new building, less new capital investment, than would be necessary otherwise. No economically rational new entrant will build anything that it can buy from others more cheaply, least of all when it can buy from others below cost. Facilities-based competition by new entrants, and new investment by incumbents, will occur only when interconnection prices are properly aligned with underlying costs.

Impediments to Investment by Incumbent Local Phone Companies in High Speed Local Networks. All of this might not matter much if at least the incumbent local phone companies still had strong incentives to upgrade their networks. But regulation has sharply undermined those incentives, too.

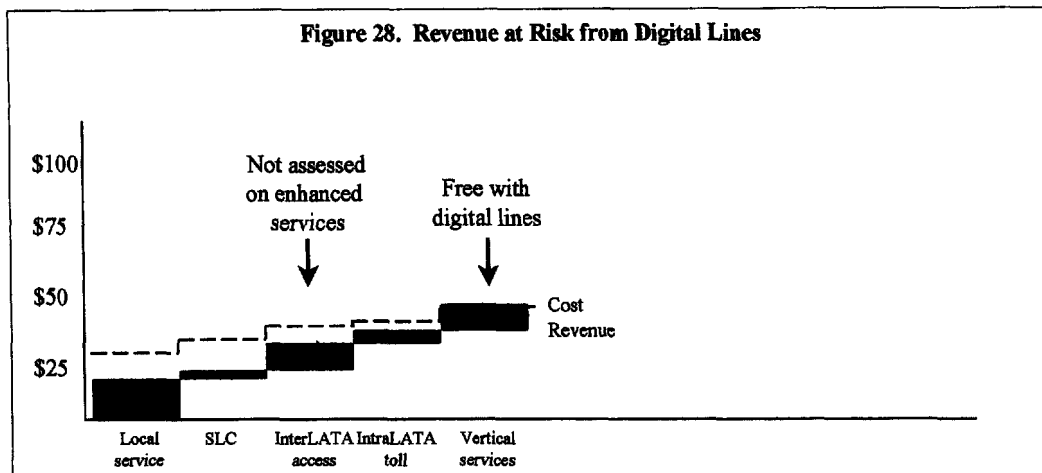
Consider again the basic economics of providing residential phone service over existing analog copper plant. The basic loop and dial tone are provided at a price well below cost, but on average, the local phone company makes up the difference on local toll, access charges, and vertical services. See Figure 9, Section 2. But what happens under the new regulatory regime when that line is upgraded (or replaced) to support much higher bandwidth digital services?

Many of the traditional sources of profit are immediately put in jeopardy. Even if used for fax or Internet telephony, the new digital lines will overwhelmingly be categorized as part of the universe of “enhanced services” – not “long distance” – from which local phone companies do not currently collect long-distance access charges.²⁵² Because it provides high-bandwidth service, one new line may displace two or more old ones. But multi-line service is generally profitable for local phone companies, because providing the first line costs so much more than providing the second. As a matter of course, phone companies run wires that contain four or six pairs of phone lines; the marginal cost of including the additional lines in the wire is very low.²⁵³ High-bandwidth digital lines may readily support (with the help of CPE and the Internet) highly

²⁵² *Access Charge Reform Order* at ¶ 341. The FCC has reserved judgment on the application of SLCs to non-ISDN high-bandwidth technologies that, like ISDN, create more than one communications channel per wire. ADSL, for example, contains three major channels: a high-speed (6 Mbps) downstream channel, a medium-speed (640 kbps) upstream channel, and a voice channel. But the upstream and downstream channels can each be divided into as many slower channels as the user wants. ADSL Forum, ADSL Tutorial: Twisted Pair Access to the Information Superhighway, http://www.adsl.com/adsl_tutorial.html. Judging from the FCC’s treatment of ISDN, ADSL lines will likely be assessed a unique SLC adjusted to reflect any additional costs to the LEC. See *Access Charge Reform Order* at ¶¶ 116, 126.

²⁵³ Since the 1970s, telephone companies have routinely equipped homes with two copper pairs, and there are now about 1.3 telephone lines in place per customer. A. Lindstrom, *Pulling Bandwidth Out of a Copper Hat*, *America’s Network*, July 15, 1997, at 59. The cost of providing a second line for these homes, then, is only the labor cost of connecting the unused pair at both the user end and the switching end, and the cost of the switch port itself. This is significantly cheaper than laying a second wire. See N.J. Muller, *Strategic Information Resources*, *What Can We Expect From Telcos in the Post-Regulatory Telecommunications Age?*, <http://www.ddx.com/postregu.shtml> (telcos use “idle capacity in an existing plant” to bring second line costs down).

profitable vertical services already provided over analog lines, such as Caller ID, call forwarding, and voice mail.²⁵⁴ **Figure 28.**



None of this would matter if local phone companies could continue charging traditional rates for service over upgraded lines. But they can't. As noted, access charges may be lost entirely when digital lines are linked to providers that call their business "enhanced service" rather than "long distance" – whether or not the service actually provides long-distance voice telephony, fax, and so forth. Beyond that, the general formula for competition in the Telecom Act will force incumbent telephone companies to unbundle (and offer at incremental cost-based prices, as discussed below) the equipment used to provide digital lines – including the copper loops themselves, of course – and to offer the complete service for resale, at sharp discounts to all comers.

In the past, even as residential prices were maintained well below cost, the quality of service was steadily upgraded system-wide. Since the Bell divestiture, for example, over 90 percent of Bell Company switches have been converted from analog to digital,²⁵⁵ and SS7 has

²⁵⁴Indeed, in Europe, "ISDN . . . has driven the digitalisation of networks and additional services offerings (such as Caller ID) of the carriers." N. Berezak-Lazarus and F. Arnold, *Internet Breathes Life Into xDSL*, Communications International, Dec. 1996, at 63. ISDN, for example, includes Caller ID signaling information with every incoming call; the right CPE can easily display Caller ID, with no revenue going to the telephone company. See S. Warren, *Building a WAN With ISDN BRI Routers*, Teleconnect, June 1997, at S30. New ISDN routers, like the \$500 YoYo Professional, use ISDN signaling information to provide Caller ID, call transferring, conference calling, and paging. *Remote Access*, Data Communications, July 1997, at 112. ISDN user forums and standards bodies are developing ISDN protocols to offer six-way conferencing, call forwarding, and voice mail. J.W. Ellis IV, *Hot, But For How Long?*, Telephony, Aug. 4, 1997. ADSL and other, higher bandwidth technologies will be more efficient ways of offering vertical features than analog lines. See C.H. Ferguson, *The Internet, Economic Growth, and Telecommunications Policy*, <http://www-eccs.mit.edu/people/ferguson/telecom/index.html>, Apr. 14, 1997.

²⁵⁵Northern Business Information, U.S. Central Office Equipment Market: 1996 Edition 21 (1996).

been fully deployed.²⁵⁶ Existing copper plant has been upgraded to support digital circuits; ISDN is now widely available to residential subscribers and prices are dropping.²⁵⁷

Demand for new, broadband digital services is surging in homes and schools, just as it is in corporate boardrooms. Phone companies, like their competitors, now have in hand the next-generation technology – Digital Subscriber Line technologies (which support simultaneous, digital transmission of voice and video over existing copper plant), hybrid fiber-coax, and switched digital video architectures – in their local loops.²⁵⁸

The new technology is at hand; the economic incentive to deploy it widely isn't. If local phone companies introduce these services successfully, competitors will be able to buy them piece by piece, at sharp discounts, and capture the profits. As currently formulated, the Commission's pricing standards require local carriers to give competitors access to network elements at prices below even the incremental cost of providing them, and still further below the actual book cost including capital and depreciation.²⁵⁹ For just the same reason, competitors have little incentive to deploy the technology themselves. Why would they, when the FCC has directed that competitors may buy the existing network below cost, and successful new technologies at cost – with no need to face the risk of losing unsuccessful investments?

As the experience in Connecticut has shown, less regulation promotes more investment. TCI poured \$300 million into the state, even as it all but froze investment elsewhere.²⁶⁰ MCI is investing money in a large fiber network in Hartford, which is one of only two small markets that MCI is entering. SNET, the incumbent, is responding with \$4.5 billion of new investment in higher bandwidth, long-distance service, and video.

The 1996 Telecommunications Act – whose stated goal is “to accelerate rapidly private sector deployment of advanced telecommunications and information technologies”²⁶¹ – includes

²⁵⁶*FCC Infrastructure Report* at Table 9(a).

²⁵⁷*Ibid.* (ISDN was available in 66 percent of the Bell Companies' access lines at the end of 1995). More recent reports show ISDN to be available in 85 percent of residential access lines and 100 percent of business lines. R. Gareiss, *Mapping a High-Speed Strategy*, Data Communications, Apr. 1997, at 62.

²⁵⁸See generally Second Annual Report, Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, 11 FCC Rcd 2060 (1995).

²⁵⁹The Commission has expressly precluded recovery of embedded costs – whether they are due to regulated depreciation or to prudent but unsuccessful innovation efforts – from consideration in the calculation of Total Element Long Run Incremental Cost (TELRIC). 47 C.F.R. §51.505(d)(1).

²⁶⁰B. Keveney, *TCI Service to Expand Next Month*, Hartford Courant, Dec. 20, 1995, at A3.

²⁶¹*Conference Report* at 1; see also S. 652, §4 (“to promote and encourage advanced telecommunications networks, capable of enabling users to originate and receive affordable, high-quality voice, data, image, graphic and video telecommunications services”).

provisions that give regulators the flexibility they need to learn from the Connecticut experience. Section 230(b) articulates a national policy “to promote the continued development of the Internet and other interactive computer services and other interactive media; [and] to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation.”²⁶² Section 706 expressly authorizes both the FCC and state regulators to “encourage the deployment . . . of advanced telecommunications capability” through “price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment.”²⁶³ The clause was “intended to ensure that one of the primary objectives of the bill – to accelerate deployment of advanced telecommunications capability – is achieved.”²⁶⁴

This is not the first time Congress has directed the FCC to create a more favorable, more deregulatory environment for new technology. Section 157 of the Communications Act, enacted in 1983, was precipitated by crippling FCC delays in approving the new technologies of that era, most notably cellular.²⁶⁵ Section 157 specifically aimed to “foster the delivery of new services and new technologies to the public in order to increase competition and promote diversity.”²⁶⁶ Well over a decade ago, Section 157 made it “the policy of the United States to encourage the provision of new technologies and services to the public,” and directed the Commission to determine within a year “whether any new technology or service proposed in a petition is in the public interest.”²⁶⁷ At least 20 other sections in the Communications Act are explicitly concerned with speeding up deployment of new technology.²⁶⁸

In sum, regulators have in hand all the authority they need to unleash local competition and spur rapid new investment in high-bandwidth infrastructure. It is time to use it.

²⁶² 47 U.S.C. §230(b).

²⁶³ §706(c)(1) defines “advanced telecommunications capability” as “high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology.”

²⁶⁴ Telecommunications Competition and Deregulation Act of 1995, Report of the Committee on Commerce, Science, and Transportation on S. 652, 104th Cong., 1st Sess., S. Rpt. Session 104-23, Mar. 30, 1995.

²⁶⁵ “Recent Commission decisions have authorized a number of new common carrier services. However, applications to provide these service have created an enormous backlog.” Federal Communications Commission Authorization Act of 1983, P.L. 98-214, 1983 U.S.C.C.A.N. 2219, 2220.

²⁶⁶ *Ibid.*

²⁶⁷ 47 U.S.C. § 157.

²⁶⁸ See 47 U.S.C. §§ 254(b)(2), (3), (6), (c)(1), (h)(2)(A), 225(d)(2), 230(b)(1) and (2), 257(b), 273(e)(3), 309(j)(3)(A), (B), (C), (j)(6)(G), (j)(12)(D)(ii), (j)(13)(D), 628(a), 710(b)(3), 710(e), 714(a)(2).